INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
We Protect Hoosiers and Our Environment.
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Eric J. Holcomb, *Governor*
Bruno L. Pigott, *Commissioner*

August 16, 2019

Duke Energy Indiana, LLC
Attn: Owen R. Schwartz
1000 East Main Street
Plainfield, Indiana 46168

Dear Mr. Schwartz:

Re: Partial Approval of
Closure/Post-Closure Plan
Wabash River Generating Station
Vigo County
SW Program ID 84-UP-09

Duke Energy's coal combustion residuals (CCR) surface impoundment closure and post-closure plan for the Duke Energy Wabash Generating Station, consisting of Ash Pond A, the Secondary Settling Pond, and the South Ash Pond (collectively known as the South Ash Pond System) is approved under 329 IAC 10-9-1(c), which incorporates portions of 40 CFR 257, Subpart D (CCR regulation). This approval is subject to the terms of this letter, the closure and post-closure plans referenced in this document, and the enclosed requirements. The facility is located at 450 Bolton Road, West Terre Haute.

Please note, this approval does not include the closure of Ash Pond B, contained within the South Ash Pond System. IDEM is continuing to evaluate proposed closure activities for Ash Pond B, and any decisions related to the closure of Ash Pond B will be addressed under separate cover. Also, the closure of the North Ash Pond is not included in this approval. It will be addressed separately from the closure of the South Ash Pond System, and it has been assigned a new identification number, solid waste program ID 84-UP-10.

The South Ash Pond System closure approval encompasses approximately 160.9 acres. South Ash Pond (72.9 acres), will be closed in place. Ash Pond A (80.2 acres) and the Secondary Settling Pond (7.8 acres) with an approximate collective acreage of 88 acres, will be closed using the closure by removal option. Upon completing closure, these ponds will be subject to post-closure requirements.

Public records for your facility are available in IDEM's Virtual File Cabinet (VFC) at www.in.gov/idem. Documents related to this approval include: the closure and post-

closure plans dated December 21, 2016 (VFC #80398553), and additional information dated December 8, 2017 (VFC #80571379), December 14, 2017 (VFC #80574745), January 31, 2018 (VFC #80604100), February 19, 2018 (VFC #80617848), July 30, 2018 (VFC #82590172), and February 15, 2019 (VFC #82698643).

This approval does not: convey any property rights of any sort or any exclusive privileges; authorize any injury to any person or private property or invasion of other private rights or any infringement of federal, state, or local laws or regulations; or preempt any duty to comply with other state or local requirements.

If you wish to appeal this decision, you must file a request for administrative review with the Office of Environmental Adjudication within 18 days after the postmark of this letter. The enclosed guidance provides information on the appeal process and your rights and responsibilities for filing an adequate and timely appeal.

If you have any questions, please contact Anna Mishel, the Permit Manager assigned this facility, by dialing (317) 233-6725 or by e-mail at Amishel@idem.IN.gov.

Sincerely,

Rebecca Eifert Joniskan

Rebecca Eifert Joniskan, Chief
Permits Branch
Office of Land Quality

Enclosure: Closure and Post-Closure Plan Partial Approval Requirements
Response to Comments
Guidance on How to Appeal IDEM Decision

cc with enclosure: Vigo County Health Department
Vigo County Commissioners
Vigo County Solid Waste Management District
President, West Terre Haute Town Council

CLOSURE AND POST-CLOSURE PLAN
PARTIAL APPROVAL REQUIREMENTS

A. General Requirements

B. Closure Requirements

C. Post-Closure Requirements

D. Ground Water Monitoring Requirements

E. Financial Responsibilities for Closure and Post-Closure

F. Compliance Schedule Requirements

A. GENERAL REQUIREMENTS

A1. The owner or operator must close and maintain the South Ash Pond System as described in the approved plans and specifications in the document titled "Proposed Ash Basin Closure and Post-Closure Plans – Ash Pond System," dated December 21, 2016 (VFC #80398553), the requirements of this approval, and the following submittals:

a. Document dated December 8, 2017 (VFC #80574745), response to request for additional information (RAI) dated October 16, 2017 (VFC #80540977);
b. Document dated December 8, 2017 (VFC #80571379), letter of notification of Construction of Industrial Storm Water Pond;
c. Document dated January 31, 2018 (VFC #80604100), addendum No.1 to December 8, 2017 response, regarding slope stability analyses; and
d. Document dated February 15, 2019 (VFC #82698643), response to RAI dated December 17, 2018 (VFC #82664516), regarding proposed site closure implementation plan.

A2. The owner or operator must call **(888) 233-7745** (IDEM's emergency response line) as soon as possible after learning of any event related to the facility that may cause an imminent and substantial endangerment to human health or the environment, such as a reportable spill (327 IAC 2-6.1) or a fire or explosion that requires the response of the local fire department.

The owner or operator must submit a written report to the Solid Waste Permits Section at the address listed in Requirement A3 within five business days after the event. The report must describe the event, and actions taken or planned to correct the event and prevent its recurrence.

A3. Unless otherwise noted, submittals must be sent to the permit manager assigned your facility at the following address:

Indiana Department of Environmental Management
Office of Land Quality
Solid Waste Permits
IGCN 1101
100 North Senate Avenue
Indianapolis, IN 46204-2251

Please provide three copies printed double-sided. An electronic copy in Acrobat PDF format on CD or DVD in place of one of the printed copies is appreciated, but not required.

A4. Records of all monitoring information and activities which are required to be submitted under this approval or specified in the closure or post-closure plan, must contain information listed in 329 IAC 10-1-4(a). Records must be maintained as specified in 40 CFR 257.105 and 329 IAC 10-1-4(b) and (c).

A5. Reports must be signed as specified in 329 IAC 10-11-3(b).

B. CLOSURE REQUIREMENTS

B1. The owner or operator must follow the approved closure and post-closure plans and specifications for the South Ash Pond System as described in the document titled "Proposed Ash Basin Closure and Post-Closure Plans – Ash Pond System," dated December 21, 2016 (VFC #80398553), and the following submittals:

a. Document dated December 8, 2017 (VFC #80574745);
b. Document dated December 8, 2017 (VFC #80571379);
c. Document dated January 31, 2018 (VFC #80604100) regarding slope stability analyses; and
d. Document dated February 15, 2019 regarding proposed site closure implementation plan (VFC #82698643, Appendix A, pp. 55-64 of 148).

B2. The following methods of closure are approved for Wabash River Generating Station South Ash Pond System:

a. Ash Pond A – Closure by removal of CCR material and one additional foot of soil;
b. Secondary Settling Pond – Closure by removal of CCR material and one additional foot of soil;
c. South Ash Pond – Closure in place;

B3. The owner or operator must notify IDEM in writing at least 15 days before the intended date to begin closure of each area of the South Ash Pond System.

B4. The owner or operator must follow the schedule included in the closure and post-closure plans to complete the preparation activities and final closure of the South Ash Pond System.

B5. The owner or operator must manage surface water as described in the approved plans and meet the following requirements:

a. Maintain drainage ditches and the sedimentation basin to prevent off-site deposition of waste and sediments. Remove sediment deposits from drainage ditches as necessary to convey storm water as designed.
b. Construct temporary run-off structures as needed in areas that are unable to drain to sedimentation basin.
c. Construct erosion control silt fences, as needed, as depicted in Detail 5 of drawing titled "Sheet 29, Details, Ash Basin Closure Plan, Wabash River Generating Station," dated November 2016 (VFC #80398553, p. 96 of 1214).

d. Construct erosion and surface water control structures as follows:

(1) As specified in Erosion and Surface Water Control Structures Design Information dated December 21, 2016 (VFC #80398553, Appendix I, pp. 978-1143 of 1214);
(2) As shown on drawing titled "Sheet 30R1-32R1, Details, Ash Basin Closure Plan, Wabash River Generating Station," dated December 2017 (VFC #80574745, pp. 95-97 of 98);
(3) As specified in document dated December 21, 2016 (VFC #80398553, Appendix I, pp. 978-1143 of 1214).

B6. The owner or operator must properly dispose of water that has been in contact with waste, in accordance with all applicable local, state, and federal laws (including 329 IAC 10-28-16 and IC 13-30-2-1).

B7. The owner or operator must perform inspections of the South Ash Pond System until completion of the final closure as described in 40 CFR 257.83 (Inspection Requirement for CCR Surface Impoundments) and as required by this approval.

B8. The owner or operator must adopt measures that will effectively minimize CCR from becoming airborne, including waste that generates fugitive dust (40 CFR 257.80) (Air Criteria) and fugitive particulate matter, in a way that does not violate the rule for fugitive dust (326 IAC 6-4) or fugitive particulate matter (326 IAC 6-5), including 326 IAC 6-5-4(g) for solid waste handling control measures (329 IAC 10-8.2-2). The owner or operator must implement dust control measures as specified in the facility's Coal Combustion Residuals Fugitive Dust Control Plan dated November 12, 2015 (VFC #82803644), and take any additional steps necessary to prevent violations of fugitive dust rules and 40 CFR 257.80.

B9. The owner or operator must follow the confirmation procedure for the removal of waste materials and one foot of additional soil from Ash Pond A and Secondary Settling Pond as described in the document dated December 8, 2017 (VFC #80571379, item 3, p. 4 of 100). The approximate bottom of ash elevation contours are depicted on the drawing titled "Sheet 18R1, Approximate Bottom of Ash Contours (Ash Pond A, Ash Pond B, Secondary Settling Pond), Ash Basin Closure Plan, Wabash River Generating Station," dated December 2017 (VFC #80574745, p. 87 of 98). Please note, even though Ash Pond B is mentioned in the title of the drawing, the closure of this pond is not address in this approval.

B10. The owner or operator must construct the soil and CCR material structural fill as follows:

a. Soil structural fill must be placed in loose lifts not to exceed 12 inches and be compacted to 95% of the standard proctor maximum dry density.
b. CCR materials placed as structural fill at an elevation within five feet of final cover subgrade (top of CCR before placement of final cover) must be placed

in loose lifts not to exceed 12 inches and be compacted to at least 85% of the standard proctor maximum dry density.

c. Place structural fill as described in the Quality Assurance Manual (QAM) dated December 21, 2016 (VFC #80398553, Appendix J, Section 4.1, pp. 1163-1214 of 1214).

B11. The owner or operator must construct the final cover as specified in the approved final grading plan listed below. Grading and stabilization of the final cover must be accomplished as described in 329 IAC 10-28-14.

a. Drawing titled "Sheet 25R1, "Final Cover Grading Plan (South Ash Pond) Ash Pond Basin Closure Plan, Wabash River Generating Station," dated December 2017 (VFC #80574745, p. 91 of 98).

b. Drawing titled "Sheet 24R1, Final Cover Grading Plan (Ash Pond A, Ash Pond B, Secondary Settling Pond), Ash Pond Basin Closure Plan," dated December 2017 (VFC #80574745, p. 90 of 98).

B12. The owner or operator must construct the final cover in compliance with the following specifications:

a. **South Ash Pond.** The final composite cover system for South Ash Pond (72.9 acres) starting from top to the bottom subgrade (top-of-existing ash) must consist of the following as shown in Detail 7 of the drawing titled "Sheet 29R1, Geomembrane Final Cover," dated December 2017 (VFC #80574745, p. 94 of 98):

- 6 inches of vegetative soil
- 18 inches of uncompacted, cohesive soil
- 12 inches of uncompacted soil consisting of ML, CL, CH, CL-ML, SC, and SM in accordance with the Unified Soil Classification System (USCS).
- 12 ounce/square yard nonwoven Geotextile or geocomposite
- 40 mil LLDPE, 30 PVC, or 60 mil HDPE geomembrane liner or equivalent installed over CCR structural fill
- Geosynthetic stabilization layer, as needed over the existing ash and as specified in the closure plan

The owner or operator must place geogrid and/or geotextile (geosynthetic stabilization layer) as needed over the exposed surface of dewatered CCR and place a minimum of five feet thick CCR material structural fill above the geosynthetic layer to form a working platform for the construction of the final cover system.

b. **Ash Pond A and Secondary Settling Pond**. The cover system for Ash Pond A and the Secondary Settling Pond starting from top to bottom above the one-foot soil excavation subgrade (top of natural soil) must consist of the following as shown in detail 18 of the drawing titled "Sheet

32R1, Ash Basin Closure Plan, Wabash River Generating Station," dated December 2017 (VFC #80574745, p. 97 of 98):

- Proposed reforestation of floodplain area
- 6 inches of vegetative layer
- 18 inches of protective layer

c. **Industrial Storm Water Pond Area**. An area of structural fill at the north end of Ash Pond A is repurposed as the facility's industrial storm water pond. The liner for the Industrial Storm Water Pond starting from top to bottom above the one-foot soil excavation and soil backfill subgrade (top of backfill soils or in-situ soil) must consist of the following as shown in details 7 and 8 of the drawing titled "Details, Industrial Stormwater Pond (WR-127), Wabash River Generating Station," dated September 19, 2017 (VFC #80571379, p. 93 of 100):

- 12 inches of INDOT, No.11 crushed stone (on bottom or floor)
- 15 inches of riprap (INDOT Uniform A). This layer, in addition to the 12 inches of crushed stone, will only be applied on the side slopes to control wave erosion.
- 16 ounce/square yard nonwoven geotextile
- 60 mil HDPE Textured Geomembrane
- Geosynthetic Clay Liner (GCL)
- Soil structural fill (thickness varies)

The owner or operator must comply with the following for the Industrial Storm Water Pond:

(1) Remove CCR material and one additional foot of soil prior to construction within the footprint of the proposed industrial storm water pond. The location of the proposed Industrial Storm Water Pond relative to the limits of the CCR structural fill area at the north end of Ash Pond A, is noted on the drawing titled "Sheet 004," dated September 19, 2017 (VFC #80571379, p. 80 of 100).

(2) Excavate and verify the approximate bottom of ash contours within the footprint of the Industrial Storm Water Pond as shown on the drawing titled "Drawing 006, Approximate Bottom of CCR Materials Industrial Stormwater Pond (WR-127), Wabash River Generating Station," dated September 19, 2017 (VFC #8057471379, p. 82 of 100).

(3) Construct the Industrial Storm Water Pond as shown on drawings titled "Drawing 017-024, Details, Industrial Stormwater Pond (WR-127), Wabash River Generating Station," dated September 19, 2017 (VFC #80571379, pp. 93-100 of 100).

(4) Construct the Industrial Storm Water Pond as specified in the document dated December 21, 2016 (VFC #80398553, Appendix I, pp. 978-1143 of 1214).

B13. The owner or operator must test and install final cover components as specified in the QAM dated December 21, 2016 (VFC #80398553, Appendix J, pp. 1144-1214 of 1214), except as otherwise noted in this approval.

B14. The owner or operator must test and install the Industrial Storm Water Pond liner components as specified in the Construction Specifications dated December 8, 2017 (VFC #80571379, pp. 7-74 of 100), except as otherwise noted in this approval.

B15. Upon selecting the specific materials for the composite liner system, the owner or operator must test the materials to verify the interface friction values meet or exceed the values in the approved design. If the tests show the interface friction values do not achieve the minimum factor of safety assumed in the approved plans, the owner or operator must select and test alternate materials and rerun the slope stability analysis.

B16. The owner or operator must submit a final closure certification to IDEM no later than 90 days after the completion of construction of the final cover system and establishment of vegetation, or within 90 days of receipt of this closure-post-closure plan approval for closure construction activities that have already been completed. The owner or operator must submit verification of environmental restrictive covenant (ERC) and deed notation to IDEM no later than 90 days after completion of all closure activities included in this approval. The final closure certification must comply with the following:

a. Meet the requirements of 40 CFR 257.102(f)(3), (g), (h), and (i), and 329 IAC 10, as applicable.
b. Certify the final closure is constructed according to the approved closure plan and the Quality Assurance Manual (QAM).
c. A registered professional engineer must certify the closure construction complies with the approved plans and specifications.
d. The final closure certification must include the following:

(1) The boundaries of the certified area
(2) The results of all tests conducted during construction
(3) The results of the interface friction tests and any new slope stability analyses, if applicable
(4) Documentation of all storm water management features that have been constructed or installed to the extent possible as designed.
(5) Any deviation/changes from the approved closure plan must be noted and explained in the report, if any.
(6) Surveys and photographic verification for both the bottom of CCR material excavation and one-foot of additional soil.

C. POST-CLOSURE REQUIREMENTS

C1. The owner or operator must perform a minimum of 30 years of post-closure monitoring and maintenance including the activities specified in the facility's post-closure plan dated February 15, 2019 (VFC #82698643, Appendix A, pp. 65-73 of 148) and the following requirements:

a. Performance standards and post-closure duties, as specified in requirements of 40 CFR 257.104 and 329 IAC 10, as applicable.

b. The 30-year post-closure period will begin when all the CCR units/areas at the facility are certified closed and IDEM accepts the certifications.

c. Monitor and maintain the closed CCR units/areas of the facility until the 30-year post-closure period begins.

C2. To be released from post-closure monitoring, the owner or operator must submit a post-closure certification statement signed by both the owner/operator and a registered professional engineer stating the post-closure care requirements have been met and the surface impoundments are stabilized. The post-closure certification is considered adequate unless, within 90 days of receipt of the post-closure certification, IDEM either notifies the owner/operator the certification is inadequate or issues a notice of deficiency indicating post-closure care is not complete, including actions necessary to correct the deficiencies.

C3. The owner or operator must comply with the facility's ERC and/or deed restriction subsequent to the completion of post-closure care certification. The owner or operator is responsible for the following:

a. Correcting and controlling any nuisance conditions occurring at the facility (329 IAC 10-31-5);

b. Eliminating any threat to human health or the environment (329 IAC 10-31-6); and

c. Performing any remedial action at the facility, if necessary (329 IAC 10-31-7).

D. GROUND WATER MONITORING REQUIREMENTS

D1. The owner or operator must comply with 329 IAC 10-9-1(c) and 40 CFR 257 (Ground Water Monitoring and Corrective Action).

D2. The owner or operator must conduct ground water monitoring throughout the closure and the 30-year post-closure care period of the unit (40 CFR 257.104(c)). IDEM will extend the post-closure ground water monitoring period if the facility is under assessment monitoring, until the facility returns to detection monitoring (40 CFR 257.104(c)(2)).

MONITORING DEVICES

D3. The facility's ground water monitoring system (System) includes the following ground water monitoring wells: MW-5C, MW-10S, MW-10I, MW-10D, MW-11S, MW-11I, MW-11D, MW-12, MW-13, MW-14S, MW-14I, MW-15S, MW-15I, MW-16S, MW-16I, MW-16D, MW-17S, MW-17I, MW-18S, MW-18I, MW-18D, MW-18VD, MW-19S, MW-19I, MW-20S, MW-20I, MW-20D, MW-21S, MW-21I, MW-21D, MW-21VD, MW-24S, MW-25, MW-26S, MW-26I, MW-26D, MW-26VD, MW-35S, MW-35I, MW-36S, MW-36I, MW-37S, MW-37I, MW-37D, MW-38S, MW-38I, MW-39S, MW-39I, MW-40S, MW-41S, and MW-41I.

The facility's System includes the following piezometers: MW-1C, MW-2C, MW-3C, and MW-4C. The owner or operator will use the piezometers for the collection of static water level elevations at least semiannually during the months specified in Requirement D14 and report the results following Requirements D23 and D24.

At least 60 days before installing new monitoring devices, the owner or operator must submit a well-installation plan for IDEM approval. The plan must provide the following:

a. A map showing the location of each device with respect to the facility's entire System and current potentiometric surface.
b. A demonstration each device will yield representative ground water samples at an appropriate location and depth within the same aquifer or aquifers as the facility's existing System, and will meet the installation requirements of 40 CFR 257.91(e).
c. Drilling methods and procedures that follow 329 IAC 10-21-4; well construction materials and details, including protocol for collecting, describing, and analyzing consolidated or unconsolidated materials (329 IAC 10-24-3(3)).
d. An example of a borehole log that includes information specified under 329 IAC 10-24-3(2).
e. Environmental qualifications of all field personnel.
f. Provisions to include the installation records in the facility operating record (40 CFR 257.91(e)(1)).

The owner or operator must submit all field documentation to IDEM within 60 days after completing all related field work.

D4. The owner or operator must label all ground water monitoring wells and piezometers with a permanent and unique identification. When reporting well and piezometer information, the owner or operator must include the identification for each well or piezometer.

D5. The owner or operator must secure the access ways to all ground water monitoring wells and piezometers to prevent unauthorized access and maintain the access ways so they are passable year round with the exception of flooding conditions.

D6. The owner or operator must maintain all ground water monitoring wells and piezometers as follows:

a. Complete necessary repairs, other than replacement (see Requirement D8), within 10 days after discovery or other time frame approved by IDEM.
b. Keep the wells and piezometers securely capped and locked when not in use.
c. Repair all cracks in and around the casings and well pads that may affect the integrity of the well.
d. Control vegetation height.
e. Redevelop the wells as needed.

D7. When abandoning a ground water monitoring well or piezometer that is part of the facility's approved System (see Requirement D3), the owner or operator must:

a. Submit a written proposal for approval explaining the reasons for and detailing the method of abandonment;
b. Use methods that comply with Indiana Department of Natural Resources (IDNR) regulation 312 IAC 13-10-2;
c. Notify the IDEM Geology Section by phone, e-mail, or letter at least 10 days before the date the abandonment work will occur;
d. Provide written notification of abandonment to IDEM and IDNR within 30 days after plugging is complete (IDNR (312 IAC 13-10-2(f)) requires written notice); and
e. Include the abandonment records in the facility operating record (40 CFR 257.91(e)(1)).

D8. The owner or operator must notify IDEM by phone, e-mail, or letter within 10 days after discovering that a ground water monitoring well or piezometer has been destroyed or is not functioning properly. The owner or operator must repair the well or piezometer if possible. If the well or piezometer cannot be repaired, then within 30 days after discovery, the owner or operator must submit a proposal for abandonment or replacement.

PLANS

D9. The owner or operator must follow an IDEM approved Sampling and Analysis Plan (SAP) that meets the minimum requirements listed in 40 CFR 257.93(a) through (e), and (i). (See Requirement F1)

D10. The owner or operator must follow an IDEM approved Quality Assurance Project Plan (QAPjP) that meets the requirements listed in 40 CFR 257.93(a) and (b). (See Requirement F2)

D11. The owner or operator must follow an IDEM approved Statistical Evaluation Plan (StEP) that meets the minimum requirement listed in 40 CFR 257.93(f) through (h). (See Requirement F3)

D12. If IDEM requests a revision to a SAP, QAPjP, or StEP, the owner or operator must submit the revised plan(s) for approval. The owner or operator must submit the plan(s) within 60 days after receiving the request. This submittal must include one original paper copy and one PDF electronic file of each plan. The owner or operator must not implement the revised plan(s) before receiving approval.

D13. If the owner or operator makes design changes to the existing System listed in Requirement D3, the owner or operator must submit a revised SAP, and if applicable a revised QAPjP, or StEP for approval. The owner or operator must submit the plans within 60 days after completing all field activities associated with the design changes. This submittal must include one original paper copy and one PDF electronic file of each plan. The owner or operator must not implement the revised plans before receiving approval.

MONITORING PROGRAMS

D14. The owner or operator must sample the ground water monitoring wells (see Requirement D3) semiannually during May and November of each year. Each sample must be analyzed following the Detection Monitoring Program (40 CFR 257.94) for the following Appendix III constituents:

a. Total Boron
b. Total Calcium
c. Chloride
d. Fluoride
e. Field pH
f. Sulfate
g. Total Dissolved Solids

The owner or operator may demonstrate an alternative frequency of sampling for the Appendix III constituents following 40 CFR 257.94(d).

When applicable, each sample must be analyzed following the Assessment Monitoring Program (40 CFR 257.95) for the following Appendix IV constituents:

a. Total Antimony
b. Total Arsenic
c. Total Barium
d. Total Beryllium
e. Total Boron
f. Total Cadmium
g. Total Chromium
h. Total Cobalt
i. Fluoride
j. Total Lead
k. Total Lithium
l. Total Mercury
m. Total Molybdenum
n. Total Selenium
o. Total Thallium
p. Radium 226 and 228 combined

For specific metal constituents, the owner or operator may incorporate historic filtered (dissolved) results into the background data set instead of collecting a minimum of eight additional independent samples (40 CFR 257.94(c)) for the unfiltered (total recoverable) metal results, if the results for the filtered metal is no greater than 20% of the relative percent difference of the unfiltered metal. The owner or operator may propose an alternative method for incorporating historic results of the specific dissolved metal into the background data set for review and approval.

Whenever results of total chromium occur at or above its background concentration or maximum contaminant level, whichever is the higher concentration, the owner or operator must speciate and report both trivalent and hexavalent chromium.

D15. The owner or operator must use the results of the static water level measurements from the System listed in Requirement D3 to prepare potentiometric surface maps or ground water flow maps for each screened interval (shallow "S," intermediate "I," deep "D," and very deep "VD") that include the following information:

a. Location and identification of each ground water monitoring well and piezometer.
b. Ground water elevations for each well and piezometer, and surface water elevations for the Wabash River. The owner or operator must measure all static water levels on the same day and as close in time as possible before the purging and sampling event.

c. Date and time of static water level measurement for each well and piezometer.
d. Ground-surface elevation at each well and piezometer.
e. Facility property boundaries.
f. Identification of the aquifer represented, either by a name or elevation.
g. Solid waste fill boundaries.
h. Facility name and county.
i. Map scale, north arrow, ground water flow direction arrows, and potentiometric-surface contour intervals.
j. Indications of which wells are considered background, upgradient, or downgradient.
k. Locations and elevations of all site benchmarks.

D16. If a ground water flow map indicates the ground water flow direction (including flow reversals) is other than anticipated in the design of the System listed in Requirement D3, then the owner or operator must notify IDEM of the difference in the ground water monitoring report submitted for Requirement D23. The notification must include either of the following: information demonstrating that the System complies with 40 CFR 257.91(c); or a proposal to revise the System design for IDEM approval.

The owner or operator must determine if the System complies with 40 CFR 257.91(c) within 7 days of initiating the scheduled semiannual sampling event. With IDEM approval, the owner or operator may postpone the scheduled semiannual sampling event in 30-day increments if they determine that the System does not comply with 40 CFR 257.91(c).

If the owner or operator determines a ground water flow reversal occurred during a scheduled semiannual sampling event, then data from that sampling event must not be utilized in statistical evaluations or incorporated into the background ground water quality calculations specified in the StEP. Additionally, the owner or operator must immediately schedule a replacement sampling event in order to complete the required semiannual evaluation for ground water releases from the facility. Within 7 days of scheduling the replacement sampling event, the owner or operator must notify IDEM of the schedule.

If design changes to the existing System listed in Requirement D3 are necessary, then the owner or operator must make the changes within 30 days after receiving IDEM approval of the revised design, or within another time frame approved by IDEM.

D17. The background ground water monitoring well (MW-5C) must provide ground water samples that represent historical conditions unaffected by a CCR unit or facility activities that may contribute Appendices III and IV constituents listed in Requirement D14 against which background comparisons occur. Any background well added to the facility's System listed in Requirement D3 also must:

a. Establish background ground water quality for the Appendices III and IV constituents listed in Requirement D14.
b. Determine the background ground water quality by sampling each new well for eight independent sampling events within 12 months after the well's installation, unless the owner or operator can justify to IDEM an extended period of no more than 12 additional months.

If the owner or operator or IDEM determines the current System (see Requirement D3) does not have the required background well(s), then, within 60 days, the owner or operator must submit a plan per Requirement D3 proposing to establish new or additional background wells for the current System for IDEM review and approval. This plan must include well location(s) for obtaining background ground water quality samples that satisfy the specifications of this requirement.

D18. The owner or operator must implement the StEP identified in Requirement D11 and include the outcome of each statistical determination in a statistical evaluation report (see Requirement D23.d).

D19. The owner or operator must implement a detection monitoring program consistent with 40 CFR 257.94 and the StEP. If the owner or operator determines there is a statistically significant increase (SSI) over background for one or more of the Appendix III constituents listed in Requirement D14 at any of the downgradient ground water monitoring wells, then the owner or operator must comply with one of the following requirements:

a. Within 30 days of determining an SSI, submit an assessment monitoring program plan meeting the requirements of 40 CFR 257.95 to IDEM for approval (40 CFR 257.94(e)(1)). Within 90 days of determining an SSI, the owner or operator must implement an assessment monitoring program following the assessment monitoring plan; or
b. Demonstrate that a source other than the CCR unit caused the SSI over background levels for a constituent, or that the SSI resulted from error in sampling, analysis, statistical evaluation, or natural variation in ground water quality (40 CFR 257.94(e)(2)). Within 90 days of detecting an SSI over background levels, the owner or operator must complete and submit the written demonstration to IDEM for approval.

   If the demonstration is approved, the owner or operator may continue with a detection monitoring program for any unit for which the demonstration was made.

D20. Within 90 days of finding that any of the Appendix IV constituents listed in Requirement D14 have been detected at a statistically significant level exceeding the ground water protection standards (40 CFR 257.95(h)), the owner or operator must comply with one of the following requirements (40 CFR 257.95(g)(3)):

a. Complete the assessment of corrective measures as required by 40 CFR 257.96, and submit the results of the corrective measures assessment to IDEM for approval. As part of the selection of corrective measures, the owner or operator must include an evaluation of potential ground water flow reversals on the System. The 90-day deadline to complete the assessment of corrective measures may be extended for no longer than 60 days. As soon as feasible and after receiving IDEM approval, the owner or operator must implement Requirement D21; or

b. Demonstrate that a source other than the CCR unit caused the contamination, or that the statistically significant level exceeding the ground water protection standard resulted from error in sampling, analysis, statistical evaluation, or natural variation in ground water quality consistent with 40 CFR 257.95(g)(3)(ii). Within 90 days of detecting a statistically significant level exceeding the ground water protection standard, the owner or operator must complete and submit the written demonstration to IDEM for approval.

   If the demonstration is approved, then the owner or operator may continue with an assessment monitoring program for any unit for which the demonstration was made.

D21. Within 90 days of IDEM's approval of the corrective measures assessment, the owner or operator must submit the selected remedy to IDEM for review and approval. The selected remedy must, at a minimum, meet the standards listed in 40 CFR 257.97(b), (c), and (d). At least 30 days before submitting the selected remedy, the owner or operator must hold a public meeting with interested and affected parties.

D22. Within 90 days of receiving IDEM approval of the selected remedy, the owner or operator must initiate remedial activities based on the approved remedy and the standards listed in 40 CFR 257.98. The corrective action program is complete when IDEM approves the owner or operator's demonstration that concentrations of Appendix IV constituents listed in Requirement D14 have not exceeded the ground water protection standard(s) for a period of three consecutive years at all points of the plume beyond the System following 40 CFR 257.98(c).

REPORTING

D23. The owner or operator must submit a ground water monitoring report that includes the results obtained from the implementation of Requirements D14 or D17 no later than 60 days after each ground water monitoring event with the following exceptions:

- The owner or operator must submit radium-specific information no later than 90 days after the ground water monitoring event.
- If the owner or operator implements a verification resampling program,

then the owner or operator must submit verification resampling results no later than 30 days after the last verification event. Verification resampling is defined in the March 2009 *Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities* (EPA 530/R-09-007).

The owner or operator must submit the report to the IDEM Solid Waste Permits Section at the address listed in Requirement A3 in one unbound paper copy and in one electronic PDF file. The report must include the following:

a. One original, unbound, laboratory-certified report with analytical results, field parameters (see Requirement D24), field sheets, and chain-of-custody forms. The laboratory-certified report must include the following: detection limit for each chemical constituent, date samples collected, date the laboratory received the samples, date the laboratory analyzed the samples, date the laboratory prepared the report, method of analysis the laboratory used for each constituent, sample identification number for each sample, and results of all sample analyses.
b. All information specified in Requirement D15 and a table summarizing the static water level and ground water elevation for each well and piezometer.
c. An evaluation of the ground water quality, recent notifications of any compliance issues related to a problematic well or piezometer (see Requirement D8), special field observations and procedures, and deviations from the SAP.
d. One original unbound copy of the statistical evaluation report (see Requirement D18).

The owner or operator may mail the PDF copy and electronic data file specified in Requirement D24 on a CD-ROM or DVD. The owner or operator must clearly label the PDF copy and electronic data file with the facility name and a brief description of the file. Alternatively, the owner or operator may email the PDF copy and electronic data file to the IDEM Solid Waste Permits Section at the address listed in Requirement A3 and carbon copy olqdata@idem.IN.gov. The email must include the facility name and a brief description typed in the email's subject heading.

D24. The owner or operator must submit one electronic data file of the analytical results and field parameters from the System (see Requirement D3) formatted as an ASCII, tab-delimited text file. The electronic data file must contain the facility's name, SW Program ID number, and the name of the analytical laboratory. Additionally, the file must include the fields listed below for the analytical results and as applicable, the following field parameters: pH, specific conductance, temperature, turbidity, well depth, depth to water, and static water elevation.

a. SamplingDate: Month, day, and year (mm/dd/yyyy). Value should be formatted as a date if possible.

b. SamplePointName: Names of ground water monitoring wells, piezometers, leachate wells, surface water collection points, etc.
c. LaboratorySample ID: ID assigned to the sample by the laboratory.
d. SampleType: Regular, duplicate(s), trip blank(s), equipment blank(s), field blank(s), verification re-sample(s), and replicate(s).
e. SpeciesName: Chloride, sodium, ammonia, field pH, etc. The order of constituents is not critical. However, it is best to reflect the order that is on the laboratory-data sheets and keep all field data grouped together. Metals should indicate "dissolved" phase or "total" phase. Associated static water levels do not have their own header, but must be entered as "GW WaterLevel" under the header "SpeciesName." The actual elevations must be entered under the header "Concentration."
f. Concentration (results): The entry must be a number. Please do not enter text, such as "NA," "ND," or "<."
g. ConcentrationUnits: mg/l, µg/l, standard units for pH, degrees Celsius (°C) or degrees Fahrenheit (°F) for temperature, and umhos/cm for specific conductance.
h. Detected: Yes or no.
i. DetectionLimit.
j. AnalyticalMethods.
k. EstimatedValue: Indicate "Yes" if the reported concentration is an estimated value. If a value recorded was not estimated, enter "No." If a concentration is estimated, use the "Comment" field to explain why the concentration was estimated.
l. Comment: Analytical laboratory and/or field personnel comments regarding the reported results.
m. SampleMedium: Ground water, leachate, surface water, etc.
n. ProgramArea: Solid Waste.

Additional guidance on electronic data file submittals is available on IDEM's website at http://www.in.gov/idem/landquality/2369.htm or by emailing questions to olqdata@idem.IN.gov.

D25. The owner or operator must retain laboratory quality assurance/quality control (QA/QC) documentation from valid analyses of ground water samples for at least three years.

Upon IDEM request, the owner or operator must submit the laboratory QA/QC for a specified ground water monitoring data package, in one paper copy and one electronic copy in PDF format, within 60 days after receiving the request. The "*Solid & Hazardous Waste Programs, Analytical Data Deliverable Requirements: Supplemental Guidance*" provides additional information about laboratory QA/QC. The guidance is available on IDEM's website at www.in.gov/idem/landquality/files/sw_resource_data_deliverable_reqs.pdf.

E. FINANCIAL RESPONSIBILITY FOR CLOSURE AND POST-CLOSURE

E1. The owner or operator must update and maintain a financial assurance mechanism as specified in 329 IAC 10-39 in an amount not less than the estimated costs of closure and post-closure in the approved closure and post-closure plan for Ash Pond A, the Secondary Settling Pond, and the South Ash Pond. The owner or operator must submit signed originals of the financial assurance mechanism and updates used to meet this requirement.

E2. The owner or operator must annually review and submit an update by June 15 addressing the following items as detailed in 329 IAC 10-39-2(c) and (d), and 329 IAC 10-39-3(c):

a. The owner or operator must adjust the closure and post-closure cost estimates for inflation.
b. The owner or operator must revise the cost estimates to account for changes which increase the cost of closure or post-closure.
c. The owner or operator may revise the cost estimates to account for changes which reduce the cost of closure or post-closure. The owner or operator must provide documentation supporting reduced cost-estimates, for example, letters and maps documenting areas certified as closed.
d. The owner or operator must submit an existing contour map of the approved solid waste land disposal facility that delineates the boundaries of all areas into which waste has been placed, and the boundaries of areas certified as closed. The map must be certified by a professional engineer or a registered land surveyor.
e. The owner or operator must submit documentation showing the financial assurance mechanism is current to cover the estimated costs of closure and post-closure. The owner or operator must submit signed originals of the financial assurance and/or updates used to meet this requirement.

F. COMPLIANCE SCHEDULE REQUIREMENTS

F1. Within 60 days after receiving this IDEM Approval Letter, the owner or operator must submit a Sampling and Analysis Plan (SAP) that meets Requirement D9. The SAP must describe sampling protocols, equipment, and methods for collecting samples to be analyzed for constituents listed in Requirement D14. The owner or operator must implement the SAP upon IDEM's written approval. The submittal must include one original paper copy and one PDF electronic file.

F2. Within 60 days after receiving this IDEM Approval Letter, the owner or operator must submit a Quality Assurance Project Plan (QAPjP) that meets Requirement D10 for the constituents listed in Requirement D14. The owner or operator must implement the QAPjP upon IDEM's written approval. The submittal must include one original paper copy and one PDF electronic file.

F3. Within 60 days after receiving this IDEM Approval Letter, the owner or operator must submit a Statistical Evaluation Plan (StEP) that meets Requirement D11. The StEP is effective upon IDEM's written approval. The submittal must include one original paper copy and one PDF electronic file.

In the StEP, the owner or operator must present the data distribution assumptions. The statistical procedures must be appropriate for the data distribution and provide a balance between the probability of falsely identifying a statistically significant difference and the probability of failing to identify a statistically significant difference. To achieve the balance, the owner or operator should consider the background sample sizes, the number of individual statistical tests performed, the number of ground water monitoring wells, and the specific verification resampling method. The statistical procedures must account for analytical results below method detection limits.

F4. Within 90 days of receiving the construction in a floodway permit from IDNR, the owner or operator must install monitoring wells MW-35S, MW-35I, MW-36S, MW-36I, MW-37S, MW-37I, MW-37D, MW-38S, MW-38I, MW-39S, MW-39I, MW-40S, MW-41S, and MW-41I (Follow Requirement D3 for the installation of wells). The owner or operator must meet Requirements D3.c, D3.e, and D3.f.

F5. Within 60 days after completing the ground water monitoring well installations described in Requirement F4, the owner or operator must submit a well-installation report that includes a soil boring log, a well construction diagram, and a completed IDNR Record of Water Well form (State Form 35680) for each well installed.

F6. The owner or operator must establish a financial assurance mechanism as specified in 329 IAC 10-39 in an amount not less than the estimated costs of closure and post-closure in the approved closure and post-closure plan for Ash Pond A, the Secondary Settling Pond, and the South Ash Pond no later than 45

days after receipt of this approval and submit proof of the establishment of the financial assurance to IDEM no later than 60 days after receipt of this approval.

F7. Within 60 days after receiving this IDEM Approval Letter, the owner or operator must submit for IDEM approval a work plan for the installation of ground water monitoring wells to provide additional downgradient coverage along the facility's property boundary.

F8. The owner or operator must notify IDEM at least 30 days before terminating the NPDES permit for managing and discharging storm water and contact water from the CCR units at the facility.

F9. The owner or operator must provide the following documentation to IDEM and receive approval before using lime kiln dust for stabilizing the ash in the South Ash Pond System:

a. The source of the lime kiln dust, waste classification determination, and the metallic contents of the material
b. The location for the stockpile of the lime kiln dust
c. Procedures for mixing the lime kiln dust with ash

Indiana Department of Environmental Management
Response to Public Comments
Proposed Closure and Post-Closure Plans for the South Ash Pond System located at Duke Energy's Wabash River Generating Station 84-UP-09

Documents:	Date:	VFC #:
Closure Plan	12.21.16	80398553
RAI #1	10.16.17	80540977
Response to RAI #1	12.14.17	80574745
Response to RAI #1 Addendum 1	02.05.18	80604100
Response to RAI #1 Addendum 2	02.22.18	80617848
RAI #2	12.17.18	82664516
Response to RAI #2	02.15.19	82698643

Comment #1:

The plan leaves coal ash sitting in groundwater, so it will not control the infiltration of liquids into the ash as required by the federal rule. At Wabash Ash Pond B, the bottom of the ash is at an elevation of 450 feet above mean sea level (amsl) (closure plan, pdf page 85) while the groundwater elevations are 453 – 460.47 feet amsl (closure plan pdf page 53), so at least the bottom 3 feet of ash are currently sitting in the groundwater. Pond B is unlined so there is no barrier between the ash pond and the groundwater. The groundwater elevations at this site are under the influence of the Wabash River so capping the ash is not likely to change the groundwater elevation. If the ash remains below the water table and resting in the groundwater, the closure plan will not "control, minimize or eliminate the infiltration of liquid into the ash" at Wabash Pond B.

Response to Comment #1:

While Ash Pond B is included in the closure plan for SWID 84-UP-09, it is not included in this decision.

Comment #2:

The plan leaves coal ash sitting in groundwater, it also will not control releases of leachate into the groundwater as required by the federal rule. The plan also will not control escape of leachate into the groundwater as required by the Indiana regulation (Indiana solid waste regulations at 329 IAC 10-30).

Response to Comment #2

This approval addresses closure of Ash Pond A, Secondary Settling Pond, and South Ash Pond. All of these units are subject to 40 CFR 257, Subpart D. Closure of these ponds will not leave coal ash in contact with ground water. Any releases from the units subject to this partial closure plan approval will be addressed through the processes outlined in 40 CFR 257.

Comment #3:

The plan will not allow Duke to remove all liquids from the ash prior to closure as required by the federal rule since the ash is sitting in groundwater "(i) Free liquids must be eliminated by removing liquid wastes or solidifying the remaining wastes and waste residues."

Response to Comment #3:

Ash Pond A and Secondary Settling Pond will be closed by removal, and the South Ash Pond is dewatered and has a liner system. Therefore the removal of free liquids has been addressed.

While Ash Pond B is included in the closure plan for SWID 84-UP-09, it is not included in this decision.

Comment #4:

The plan is leaving coal ash in the floodplain of the Wabash River. The ash will be covered with a synthetic fabric and 30 inches of soil topped with vegetation, and the side toward the river will be covered with riprap up to the 100-year flood level. However, flooding could move the riprap and erode the underlying soil, so the plan will not prevent the sloughing or movement of the final cover as required by the federal rule 257.102(d)(2)(iii) – "(iii) Include measures that provide for major slope stability to prevent the sloughing or movement of the final cover system during the closure and post-closure care period." Pond B is going to be closed with an impermeable cap. With the current plan for Ash Pond A and Pond B, these protections will not prevent erosion of the berm every time the flood waters reach it. Flood waters could move riprap and cause sloughing. Therefore, the closure plan does not include measures to prevent sloughing or movement of the final cover. With coal ash left in the floodplain, the plan will not control the release of the ash as required by both the Indiana and federal rules. Eventually the Wabash River will shift its course, as rivers do, and then it could erode into the North Pond cap causing a release of the ash. Closing the North Pond ash in place on the floodplain is, therefore, not a "manner that controls post-closure escape of water" per Indiana's Rule 30. For the same reason, closure of Pond B in the floodplain will not "control, minimize or eliminate, to the maximum extent feasible, ...release of CCR" as required in the federal rule at 257.102(d)(1)(i).

Response to Comment #4:

It should be noted that some of these comments were made on the original closure plan prior to additional modifications/changes and addendums to the original submittal. To clarify, there will be no ash left in the floodplain because the facility is proposing to remove all ash from Ash Pond A and Secondary Settling Pond. Ash Pond A and Secondary Settling Pond will be closed by removal of ash. Ash removed from Ash Pond A and Secondary Settling Pond will be used as a structural fill for closure-in-place of South Ash Pond. South Ash Pond is above the 100-year flood plain.

Please note, the northern portion of Ash Pond A, after removal of ash, will be lined with geomembrane liner and be used as an Industrial Storm Water pond in the future.

The owner or operator is proposing closure by removal for Ash Pond A and Secondary Settling Pond which are in the 100-year flood plain. This closure plan proposes to excavate all ash and one foot into natural soil beneath the ash, and cover the area with 18 inches of clay type of soil and six inches of topsoil. This activity will be performed by qualified personnel and will be documented and submitted to OLQ as a Construction Certification Report. Construction certification activities and the related report are specifically addressed in approval Requirement B16.

In regards to the comment about the movement of riprap placed up to 100-year flood level and slope stability issue, the closure plan includes detailed slope stability analysis by a qualified professional engineer to ensure that the dikes are stable and protected from repeated flooding with an acceptable factor of safety requirements. In addition, the facility is required to maintain all components of the final cover system, including the riprap and the soil beneath it, during the 30-year post-closure period, as well as subsequent to the post-closure certification at the end of the post-closure period. In the event there is some movement of riprap, the owner or operator is required to replace riprap as part of the post-closure maintenance.

Please note, North Ash Pond is not part of this closure plan and is not subject to the CCR Rule. Closure of the North Ash Pond will be evaluated separately in accordance with the state rule.

Comment #5:

The plan does not include the location of the well(s) used to determine background concentrations. It should be noted that groundwater beneath floodplains generally flows somewhat downstream rather than directly toward or away from the river.

Response to Comment #5:

Ground water monitoring well MW-5C (VFC #82679840, page 6 of 9; VFC #82623303, pages 2 and 4 of 4; VFC #82596072, pages 5 and 6 of 12) was proposed by the facility and approved by IDEM as an appropriate background well to compare background ground water quality against ground water samples from wells downgradient of the waste boundary.

Comment #6:

The plan does not include the comparison of groundwater concentrations near the ash ponds to background.

Response to Comment #6:

Ground water monitoring well MW-5C (VFC #82679840, page 6 of 9; VFC #82623303, pages 2 and 4 of 4; VFC #82596072, pages 5 and 6 of 12) was proposed by the facility and approved by IDEM as an appropriate background well to compare background groundwater quality against wells near the waste boundary. The ground water monitoring system as described in the forthcoming approval will be used to compare results from the background well to potentially affected downgradient wells' monitoring results. The facility began collecting background water data from ground water monitoring well MW-5C on March 18, 2016 (VFC #80453536), and most recently reported MW-5C results to IDEM in the *November 2018 Semi-annual Groundwater Monitoring Report* dated January 18, 2019 (VFC #82679941). IDEM suggested additional background ground water monitoring wells due to potential issues resulting from the downstream location of MW-5C. However, the facility has demonstrated a lack of viable alternative locations. Additionally, the facility has demonstrated that MW-5C currently does not exhibit any elevated concentrations of CCR chemical constituents when compared to downgradient ground water monitoring wells. Therefore, IDEM is allowing the facility to use MW-5C to determine background concentrations with the understanding that any indication of coal combustion residual impacts at MW-5C will result in a reassessment and replacement of the background well location.

Comment #7:

The plan does not include the testing for some of the constituents required in the CCR Rule, Appendix IV.

Response to Comment #7:

Ground water monitoring constituents were updated in the response to request for additional information received December 14, 2017 (VFC #80574745, pages 27 through 29 of 98). IDEM staff have reviewed and approved the specified constituents for inclusion in the closure plan. The ground water monitoring report for the south ash impoundment system dated January 18, 2019 (VFC #82679941), includes analyses for all Part 257 Appendix IV chemical constituents plus total/dissolved iron, total/dissolved magnesium, total/dissolved manganese, total/dissolved potassium, total/dissolved sodium, total/dissolved strontium, and total/dissolved aluminum.

Comment #8:

The plan does not include sample collection, preservation, shipment, analytical, chain of custody, and quality assurance and quality control procedures for groundwater monitoring. Instead the closure plan states that those procedures will be prepared after approval of the plan: "A groundwater sampling and analysis plan that describes the sampling protocols, sampling methods, monitoring points, and monitoring parameters will be prepared within 90 days following IDEM's approval of this Closure Plan." The first 8 sampling events must be completed and analyzed by October 17, 2017, and those samples should be collected and handled according to acceptable procedures. 90 days following the approval of this closure plan will be far too late to have procedures in place for the initial 8 samples.

Response to Comment #8:

On October 17, 2017 (VFC #80555214) the facility submitted a ground water monitoring report containing samples from 30 wells at the site over 8 sampling events from June 2016 to August 2017. The report evaluated the data as outlined in section 40 CFR 257.90(e).

This decision approves the ground water monitoring system. Prior to this decision, the facility was required to follow the requirements in the self-implementing federal rule.

Comment #9:

The plan does not clarify as to whether testing for metals is done on unfiltered samples. It is uncertain whether the metal values reported in the Wabash groundwater samples were measured as total recoverable metals in unfiltered samples since there is no sampling procedure in the closure plan.

Response to Comment #9:

The Field Data Sheets contained in the ground water monitoring report dated October 17, 2017 (VFC #80555214), indicate the field staff did not field-filter the samples. The analytical laboratory reports from 2018 and 2019 (VFC #s 80584708, 82582498, and 82679941) indicate the facility directed the laboratory to test ground water samples for metals on unfiltered samples. The public may review total recoverable metals results from unfiltered Wabash ground water samples in the following ground water monitoring reports dated:

- January 2, 2018 (VFC #80584708)
- July 13, 2018 (VFC #82582498)
- January 18, 2019 (VFC #82679941)

Comment #10:

The plan does not specify constituents assessed for detection monitoring, CCR Rule Appendix III.

Response to Comment #10:

Ground water monitoring constituents were updated in the response to request for additional information dated December 14, 2017 (VFC #80574745, pages 27 through 29 of 98). The Plan has been revised to include all Appendix III and Appendix IV constituents.

Comment #11:

The plan does not specify the specific steps required after detection of groundwater contamination.

Response to Comment #11:

40 CFR 257.94(e) states: "If the owner or operator of the CCR unit determines, pursuant to § 257.93(h) that there is a statistically significant increase over background levels for one or more of the constituents listed in appendix III to this part at any monitoring well at the waste boundary specified under § 257.91(a)(2), the owner or operator must:
(1) Except as provided for in paragraph (e)(2) of this section, within 90 days of detecting a statistically significant increase over background levels for any constituent, establish an assessment monitoring program meeting the requirements of § 257.95."

IDEM will require the facility to follow the steps specified in 40 CFR 257 if detection of a statistically significant increase in ground water contamination occurs. As specified above, any necessary assessment monitoring or corrective action requirements will be considered and approved by IDEM if the ground water monitoring system in the approved closure plan detects a statistically significant impact to ground water, as defined in 40 CFR 257.93(f), (g), and (h).

Comment #12:

The federal CCR Rule 257.94(b) requires 8 groundwater samples by October 17, 2017. The publically available summary document on the March 2016 sampling at Wabash lacks several of the required constituents from appendix IV of the CCR Rule: antimony, beryllium, cobalt, lithium, thallium, and radium. The plan states, "After an initial compressed sampling frequency, to collect at least eight independent data points, the monitoring wells will then be sampled on a semi-annual basis."

Response to Comment #12:

40 CFR 257.94(b) states: "Except as provided in paragraph (d) of this section, the monitoring frequency for the constituents listed in appendix III to this part shall be at least semiannual during the active life of the CCR unit and the post-closure period. For existing CCR landfills and existing CCR surface impoundments, a minimum of eight independent samples from each background and downgradient well must be collected and analyzed for the constituents listed in appendix III and IV to this part no later than October 17, 2017. For new CCR landfills, new CCR surface impoundments, and all lateral expansions of CCR units, a minimum of eight independent samples for each background well must be collected and analyzed for the constituents listed in appendices III and IV to this part during the first six months of sampling."

Based on our review of the data, the facility completed eight ground water sampling events for Appendix III and Appendix IV constituents before October 17, 2017. The dates of the sampling events are as follows:

- June 22, 2016
- August 17, 2016
- October 4, 2016
- December 1, 2016
- February 2, 2017
- March 22, 2017
- May 24, 2017
- July 11, 2017

So while the March 2016 sampling event may not have reported several of the Appendix IV constituents, the facility still met the requirements of 40 CFR 257.94(b).
The public may view the ground water monitoring report summarizing the eight sampling events noted above at the following internet location:
https://www.duke-energy.com/_/media/pdfs/our-company/ash-management/wr-annl-gmcar-papa.pdf?la=en
The report is titled "CCR Annual Groundwater Monitoring and Corrective Action Report" and dated December 27, 2017. The facility uploaded the report to its public website on February 6, 2018 under the "Groundwater Monitoring and Corrective Action Report" category.

Comment #13:

The Wabash closure plan proposes to characterize groundwater quality without using pH or fluoride, as listed in the CCR Rule Appendix III. The plans states "For purposes of evaluating the relationship between wells and characterizing the groundwater quality the following six (6) parameters were specifically considered:

- Barium
- Boron
- Calcium
- Chloride
- Sulfate
- Total Dissolved Solids"

The Wabash closure plan goes on to imply that Duke Energy could revise the list of constituents in the future rather than complying with the constituents required by the CCR Rule: "Following collection of eight rounds of groundwater monitoring results, the analytical parameter list may be revised if continued monitoring of specified parameters is not beneficial . . ."

Response to Comment #13:

Ground water monitoring constituents were updated in the response to request for additional information dated December 14, 2017 (VFC #80574745). See the facility's responses to Geology Enclosure Items 11 and 12, and the revised Table 5 for details. Fluoride and pH are included in the new constituent list and are included in the approved closure plan. The Plan has been revised to include all Appendix III and Appendix IV constituents.

Comment #14:

Instead of following the CCR Rule requirements, the Wabash closure plan proposes to respond to the detection of impacted groundwater by continuing the detection monitoring for two years until at least 4 exceedances have occurred. The plan makes no mention of instituting assessment monitoring as the CCR Rule requires. The plan states, "If the goal level is exceeded in a particular well or wells, Duke Energy will collect an additional groundwater sample from the well(s) exceeding goal(s) within thirty days of receipt of validated analytical results to verify the detected concentration. If the concentration(s) exceeding goal(s) are verified, monitoring will continue on the schedule semi-annual . . . If after at least four sampling events it is determined that an increasing concentration shift may exist, Duke Energy will increase the monitoring frequency to quarterly…". There is no mention in the Wabash plan of the series of steps required in the CCR Rule at 257.95 following detection of a statistically significant increase over background.

Response to Comment #14:

The facility updated ground water monitoring and statistical procedures in the response to request for additional information dated December 14, 2017 (VFC #80574745). See the facility's response to Geology Enclosure Item 11 for details. IDEM and the facility continued correspondence regarding this issue in the Response to Request for Additional Information Proposed Site Closure Implementation (Second RAI Response) dated February 15, 2019 (VFC #82698643). See pdf pages 49 through 51 of the Second RAI Response for details. Both documents address assessment monitoring and steps following detection of a statistically significant increase over background, as required by 40 CFR 257.95. Requirements D14, D19, and D20 of this partial closure plan approval require the facility to comply with the ground water monitoring procedures at 40 CFR 257.95.

Comment #15:

The CCR rule requires selection of corrective action if ground water has been impacted. In contrast, the Wabash closure plan, after waiting the two extra years, states that "then Duke Energy will take action to determine what steps to take to mitigate the degradation in effectiveness of the closure action." Again, the Wabash plan does not follow the CCR requirements and makes no reference to the corrective action requirements of the CCR Rule.

Response to Comment #15:

The facility updated ground water monitoring and statistical procedures in the response to IDEM's Request for Additional Information dated December 14, 2017 (VFC #80574745). See the facility's response to Geology Enclosure Item 11 for details. IDEM and the facility continued correspondence regarding this issue in the Response to Request for Additional Information Proposed Site Closure Implementation (Second RAI Response) dated February 15, 2019 (VFC #82698643). See pdf pages 49 through 51 of the Second RAI Response for details. Both documents address the corrective actions, as required by 40 CFR 257.96 and 40 CFR 257.98. Requirements D20, D21, and D22 of this partial closure plan approval require the facility to comply with 40 CFR 257.96, 40 CFR 257.97, and 40 CFR 257.98.

Comment #16:

The federal CCR Rule specifies certain elements that must be part of the closure plan: §257.102(b) Written closure plan—(1) Content of the plan. The owner or operator of a CCR unit must prepare a written closure plan that describes the steps necessary to close the CCR unit at any point during the active life of the CCR unit consistent with recognized and generally accepted good engineering practices. The written closure plan must include, at a minimum, the information specified in paragraphs (b)(1)(i) through (vi) of this section.

(vi) A schedule for completing all activities necessary to satisfy the closure criteria in this section, including an estimate of the year in which all closure activities for the CCR unit will be completed. The schedule should provide sufficient information to describe the sequential steps that will be taken to close the CCR unit, including identification of major milestones such as coordinating with and obtaining necessary approvals and permits from other agencies, the dewatering and stabilization phases of CCR surface impoundment closure, or installation of the final cover system, and the estimated timeframes to complete each step or phase of CCR unit closure.

When preparing the written closure plan, if the owner or operator of a CCR unit estimates that the time required to complete closure will exceed the timeframes specified in paragraph (f)(1) of this section, the written closure plan must include the site-specific information, factors and considerations that would support any time extension sought under paragraph (f)(2) of this section.

The Wabash closure plan does not include a schedule as required by the federal CCR Rule.

Response to Comment #16:

The owner or operator provided written closure and post closure plan to comply with CCR rule 257.102(b) and 329 IAC 10-30-4 (Closure Plan) and 329 IAC 10-31-3 (Post-Closure Plan). The projected date of closure is 2023.

Reference: Please see updated Closure and Post-Closure plans (VFC #82698643, Appendix A, pages 55 through 73 of 148), dated February 15, 2019.

Comment #17:

The monitoring at Wabash includes testing groundwater for total chromium. Hexavalent chromium (CrVI) is the most toxic form and is a powerful carcinogen. The Electric Power Research Institute tested for total chromium, CrIII, and CrVI in coal ash leachate from 29 different coal ash facilities. They found that chromium in coal ash leachate was more often CrVI: "Analysis of speciation samples indicated that ash leachate is usually dominated by As(V) and Cr(VI). Therefore, it would be more relevant to human health and more in keeping with likely leaching to test the Wabash leachate for CrVI. We would like to request that groundwater monitoring at Wabash include hexavalent chromium (CrVI). The Indiana screening level for CrVI in groundwater is 0.35 micrograms/liter, so the sample analysis would need to be sensitive enough to have a limit of detection no higher than 0.35 ug/L.

Response to Comment #17:

Requirement D14 of this partial closure plan approval requires speciation of chromium, including the concentration of hexavalent chromium (CrVI), if the facility detects a total chromium concentration in ground water at or above the background concentration or the U.S. Environmental Protection Agency's Drinking Water Maximum Contaminant Level of 100 micrograms per liter, whichever concentration is higher. IDEM agrees that the Indiana Remediation Closure Guide screening level for hexavalent chromium is 0.35 micrograms per liter, and that any analysis of ground water for hexavalent chromium needs to have a minimum detection limit of 0.35 micrograms per liter.

Comment #18:

If this plan is implemented the berms around the ash ponds will be supporting a large additional weight. The plan does not directly describe an assessment of whether they have the structural capacity to bear the additional weight. Other than the modifications of the berms between the Pond A area and Pond B – Settling Pond, the plan makes no other mention of strengthening the ash pond berms. The berms around the Wabash ash ponds are not covered by the impermeable cap, so they are subjected to weather. Over time weathering can weaken them. We would like to request an evaluation by Duke of the structural ability of the berms around the Wabash ash ponds to carry the additional weight of the cover and to address the weathering to date and future weathering of the berms.

Response to Comment #18:

The facility provided detailed slope stability analyses to address this concern. The factor of safety provided with these analyses is satisfactory. Concern over weathering of the berm is covered under post-closure maintenance for 30 years and beyond, if necessary. Please see partial closure plan approval Requirements C1 and C2 for more specific detail/requirements.

Reference: Please see detailed Slope Stability Analyses provided in VFC #80604100, pages 1 through 68 of 68, dated January 31, 2018.

Comment #19:

The Wabash closure plan states that "all surface water control systems have been designed to control runoff from a 25 year-24 hour storm event". There are two concerns with this statement:

A. With climate change, Indiana is experiencing increasing frequency of violent storms, so the current records on what constitutes a 25 year-24 hour storm may not be accurate going forward.

B. Because of the enduring nature of coal ash, these structures need to contain the ash indefinitely, not just for the next 25 years. Use of a stronger standard than the 25 year-24 hour should be required.

Response to Comment #19:

The facility provided information based on the requirements in 40 CFR 257.81 titled "Run-on and Run-off Control for CCR Landfills" since there is no specific requirement for surface impoundments. The purpose of this requirement is to properly size pipes and drainage ditches to convey surface water run-off at the site as fast as possible in order to minimize infiltration into the final cover. The facility is responsible for maintaining and repairing the cover and the storm water control system during the 30-year post-closure period.

Comment #20:

The direction of groundwater flow has not been adequately characterized. The elevation of water within active ponds must be incorporated into water elevation mapping in order to identify realistic groundwater flow directions. The water level maps provided in the plan contain many estimated contours due a lack of data within and west of the ash impoundments. Wells or piezometers located near the center of inactive impoundments are necessary to evaluate the presence and magnitude of groundwater mounding and the direction(s) of groundwater flow, and monitor changes in water elevation during and after closure.

Response to Comment #20:

The ground water monitoring system is adequate to initiate detection monitoring. The facility will utilize the ground water monitoring system directly surrounding the impoundments and surface water elevations from the Wabash River for ground water flow determinations.

Surface water elevations of active ponds are not necessary to accurately determine ground water flow across the site. Wells or piezometers located near the center of inactive impoundments are not necessary to evaluate the magnitude and direction of ground water flow. In addition, the water table aquifer pinches out west of the facility, as bedrock elevations rise to the west. This creates limited availability of viable locations to monitor ground water west of the existing impoundments. IDEM raised the issue of ground water mounding and the lack of ground water monitoring wells to the west of existing impoundments with the facility in IDEM's Request for Additional Information dated October 16, 2017 (VFC #80540977). IDEM evaluated boring log data submitted from the facility's response to the RAI and determined that the system is adequate. If IDEM determines that more wells are necessary to improve the understanding of ground water flow at the facility, then IDEM will recommend installation of additional wells or piezometers at that time.

Comment #21:

Monitoring wells located west of the impoundments are needed to evaluate water elevations on that portion of the property, allow detection of contaminants that are likely migrating from groundwater mounds, and support evaluation of potential post-closure water level changes.

Response to Comment #21:

The water table aquifer pinches out west of the facility, as bedrock elevations rise to the west. This creates limited availability of viable locations to monitor ground water west of the existing impoundments. IDEM raised this issue with the facility in IDEM's Request for Additional Information dated October 16, 2017 (VFCV #80540977) and IDEM's Wabash Groundwater Monitoring System Design Report Review dated May 11, 2018 (VFC #82539886). The facility responded with letters dated December 14, 2017 (VFC #80574745) and August 9, 2018 (VFC #82596072) respectively. Water level data from the existing ground water monitoring system indicates that ground water dominantly flows from west to east at the facility, thereby indicating that chemical constituents of coal ash are unlikely to migrate to the west. IDEM evaluated boring log data submitted from the facility's response to the RAI and determined that the system is adequate. If IDEM determines that more wells are necessary to improve the understanding of ground water flow at the facility, then IDEM will recommend installation of additional wells or piezometers at that time.

Comment #22:

There is no acknowledgement that flow directions on the floodplain will change with changes in river stage. Groundwater flow will be reversed, from the river toward the highlands, during high river stage events.

Response to Comment #22:

Page 22 of the Closure and Post-Closure Plan Application dated December 21, 2016 (VFC #80398553 page 26 of 1214) states that "groundwater flow velocities and directions are likely to change." IDEM will evaluate flow reversals based on river stage data and ground water elevation data submitted by the facility. Requirement D16 of the partial closure plan approval requires that if ground water flow direction is other than anticipated, then the facility will either demonstrate the existing ground water monitoring well system still complies with 40 CFR 257.91(c), or propose a revision of the monitoring system design for IDEM approval.

Comment #23:

Despite the fact that monitoring conducted to date shows significant ash impacts, the lateral extent of ash-related contaminants in groundwater has not been identified. The Closure Plan proposes (page 20) to use data from semi-annual groundwater monitoring conducted after closure to "better define the extent of the impact to water quality." Monitoring data provided in Table 4 and available in the Indiana Department of Environmental Management (IDEM) virtual file cabinet shows that many of the monitoring wells in the current monitoring system are already known to be contaminated with ash-related constituents including arsenic, boron, manganese, sulfate, and total dissolved solids (TDS) in concentrations well above the relevant USEPA water quality standards or Removal Management Levels (RML). The sources, magnitude and extent of ash-related groundwater contamination must be determined prior to site closure so that a closure method capable of cleaning-up impacted groundwater may be implemented.

Response to Comment #23:

An approved ground water monitoring system is necessary to fully determine the sources, magnitude and extent of ash-related ground water contamination. The ground water monitoring system as described in the approval will be used to determine whether further assessment monitoring or corrective actions are necessary (40 CFR 257).

Comment #24:

Characterization of groundwater quality using only six of the 34 analyzed parameters is insufficient. Redox sensitive parameters such as arsenic, chromium and other sensitive parameters may be liberated from wastes and/or sediments in response to changes in groundwater elevation, or other change that affect chemical equilibrium. Additionally, geochemical conditions may impact releases of ash-related contaminants. The closure plan needs to describe the source and extent of these parameters and evaluate conditions that have the potential to affect subsurface redox conditions in order to avoid unexpected releases of ash-related contaminants by closure actions.

Response to Comment #24:

Ground water monitoring constituents were updated in the response to request for additional information received December 14, 2017 (VFC #80574745). All analyzed constituents will be evaluated by IDEM staff and staff will evaluate whether the facility adequately determines if further monitoring or remediation activities are necessary. Additionally, 40 CFR 257 does not require facilities to report redox measurements. Requirement D11 of this partial closure plan approval requires the facility to follow an IDEM-approved Statistical Evaluation Plan that meets the minimum requirements listed in 40 CFR 257.93(f) through (h). The Rule requires statistical evaluations of each monitored chemical constituent. Furthermore, all applicable facets of 40 CFR 257 including detection monitoring, assessment monitoring, and corrective action will be required of the facility.

Comment #25:

The post-closure care period is inadequate. The Closure Plan describes a post-closure care period of at least 30 years. A 30-year post closure care period renders the proposed closure a temporary fix to a permanent problem. Over time, the processes of cap erosion and decomposition, animal burrowing, and/or anthropogenic activities will invariably result in increased infiltration of water into the waste and leaching of contamination into groundwater. Even more problematic is that the monitoring program may have been discontinued by the time these processes manifest themselves in deteriorating water quality. The proposed Closure Plan essentially pushes the problem under a cover that may last long enough that nobody will be looking.

Response to Comment #25:

The facility provided a written closure and post-closure plan to comply with CCR rule 257.102(b) and 329 IAC 10-30-4 (Closure Plan) and 329 IAC 10-31-3 (Post-Closure Plan). Both the federal and Indiana state rules require 30 years of monitoring and provide performance standards that the facility must meet to certify and end the post-closure care period. If these conditions are not met, the rule gives IDEM the ability to extend the 30-year post-closure period. IDEM will evaluate post-closure monitoring data during and at the end of the 30-year post-closure period to determine if the post-closure period should be extended beyond the minimum required 30 years. In addition, IDEM will not release the financial assurance requirement until the site is stabilized and there is no threat to human health and the environment after post-closure.

Reference: Please see updated closure and post-closure plans (VFC #82698643, Appendix A, pages 55 through 73 of 148), dated February 15, 2019.

Comment #26:

The embankments around the South Ash Pond were constructed with an ash core. Ash, unlike natural soil materials, reacts readily with environmental water. As a result, ash weathers over time. The ash originally used in construction is fundamentally changed by water as it ages. As a result of chemical changes through time, the physical properties of zones constructed with ash also change with time. The density of ash zones will decline as mass is leached away. The cohesion of ash degrades over time as its original mineralogy and composition change. The original permeability of the ash zone increases with increased weathering, a change itself creating multiple effects. The higher permeability allows more water to flow through the ash, accelerating the water-driven weathering. The increased permeability also allows greater flow velocities, increasing the potential for physical piping of fine sediments from the berm.

Response to Comment #26:

AECOM's response given in RAI question #4 (VFC #80574745), dated December 8, 2017 states: "The dikes of South Ash Pond are comprised of a clay cap overlying compacted fly ash core." "The findings of this investigation are in close agreement with the configuration shown on historical plans of these structures." Copies of select historical drawings are provided in VFC #80574745, Appendix C, dated December 8, 2017. Based on this statement, and because the dike core is covered with cohesive soil and is encapsulated, the weathering, leaching and erosion of the ash will be minimal to none, provided the dike is maintained as designed.

Comment #27:

The description of the proposed statistical testing on pages 21 and 22 to be utilized during performance monitoring is a masterful example of the use of statistics to obfuscate real-world performance. Performance goals for each well are established based on current conditions for each parameter. The control limit used for comparison to individual monitoring concentrations is defined as the mean value plus 4.5 times the standard deviation of baseline values. Setting the control limit to the mean plus 4.5 standard deviations would be exceptionally effective at assuring that releases to the environment are never identified, regardless of whether or not the selected remedy is effective. The proposed closure plan eliminates the possibility of identifying an insufficient closure. The plan indicates that a potential indicator of a departure from remedy effectiveness is four successive goal limits exceeded in a single monitoring well over the scheduled (semi-annual) monitoring frequency. A single well has to exceed its unreasonably high limit during every sampling event over a two year period in order to be identified as exceeding the goal. This is exceptionally unlikely given the highly variable groundwater flow directions in the floodplain setting. The Closure Plan acknowledges this feature of the proposed data evaluation scheme on page 24 where it states "the response of the constituent (parameter) concentrations on site groundwater as a result of corrective actions given the hydrogeologic conditions could take years to evaluate potential concentration shifts."

Response to Comment #27:

The facility updated statistical procedures in the response to IDEM's Request for Additional Information dated December 14, 2017 (VFC #80574745). See the facility's response to Geology Enclosure Item 11 for details. IDEM and the facility continued correspondence regarding this issue in the Response to Request for Additional Information Proposed Site Closure Implementation (Second RAI Response) dated February 15, 2019 (VFC #82698643). See pdf pages 49 through 51 of the Second RAI Response for details. Both documents address statistical requirements given in 40 CFR 257.93 through 40 CFR 257.96, and 40 CFR 257.98. The requirements of this partial closure plan approval require the facility to follow these statistical procedures.

Comment #28:

Groundwater quality is already impaired by these facilities. Review of the analytical data contained in Table 4 shows that most of the wells that are currently being monitored show concentrations of ash-related constituents at concentrations above applicable USEPA water quality standards or RMLs. Boron is at concentrations above its Removal Management Levels (RML) in both reported samples from 23 of 40 monitoring wells. Sulfate and TDS were detected in concentrations above their secondary drinking water standards in both samples from 13 and 28 monitoring points, respectively.

Response to Comment #28:

An approved ground water monitoring system is necessary to fully determine the sources, magnitude, and extent of ash-related ground water contamination. The ground water monitoring system as described in the approval will be used to determine whether further assessment monitoring or corrective actions are necessary (40 CFR 257).

Additional Comments

Supplemental Comments on the Wabash River Generating Station Ash Pond System Modified Closure & Post-Closure Plan (Comments) dated June 10, 2019 (VFC #82792261) were submitted to IDEM. The Comments essentially agree with IDEM's assertion that coal combustion residuals (CCR) must be separated from ground water to the maximum extent feasible to satisfy the closure performance standard under 40 CFR 257.102(d). IDEM received the Comments from Citizens Action Coalition, Hoosier Environmental Council, and Earthjustice. The Comments supplement previously submitted public comments dated June 24, 2017 (VFC #82821960). IDEM sent Duke Energy Indiana (DEI) a supplemental Request for Additional Information (RAI2) dated December 17, 2018 (VFC #82664516). DEI responded to IDEM's RAI with a letter dated February 15, 2019 (VFC #82698643). The Comments address items from DEI's February 2019 letter.

Comment #29

In addition, cross-section C submitted with Duke's closure plan clearly shows groundwater at 452.89 feet, higher than the base of the coal ash in the South Ash Pond at 451.7 feet.

Response to Comment #29

The South Ash Pond has a geomembrane composite liner in addition to a clay liner that rise to the top of the pond's berms as noted by the *Limits of South Ash Pond* labels and the blue line denoting *Approximate Base of Ash Storage Unit* according to Cross Section C and its Map Legend. The South Ash Pond's liner system meets 40 CFR 257 and IDEM closure standards and essentially cuts off any hydraulic connection to the underlying aquifer. Therefore, IDEM is allowing the facility to close the South Ash Pond in place. In addition, the base elevation of ash in the South Ash Pond is given as 457.0 feet above mean sea level (ft amsl), according to Cross Section C. The ash shown at 451.7 ft amsl in boring B-16 relates to ash used as fill material during berm construction for the South Ash Pond.

Comment #30

Because it is possible for Duke Energy to excavate its ash from groundwater, it must do so in order to comply with the Closure Performance Standard.

Response to Comment #30

The facility has several options to comply with the closure performance standards. The options include various methods of "closure-in-place" and "closure-by-removal." They may employ closure-in-place if they control, minimize, or eliminate, to the maximum extent feasible, post-closure infiltration of liquids into the waste and releases of CCR to the ground or surface waters, along with meeting other requirements (40 CFR 257.102(d)). There are several ways to isolate or stabilize CCR aside from excavation, which could potentially meet the performance standard for closure-in-place. Such options remain available to the facility.

Comment #31

The Closure Performance Standard works in concert with other provisions of the Coal Ash Rule to ensure that groundwater does not remain in contact with coal ash. Most notably, the uppermost aquifer location restriction requires operators of existing surface impoundments to "demonstrate that there will not be an intermittent, recurring, or sustained hydraulic connection between any portion of the base of the CCR unit and the uppermost aquifer due to the normal fluctuations in groundwater elevations (including the seasonal high water table)." 40 C.F.R. § 257.60(a). Operators of existing surface impoundments were required to make such a demonstration by October 17, 2018.[21] At Wabash, the South Ash Pond failed to meet the aquifer separation requirement.[22] An existing impoundment that fails to demonstrate compliance with the five-foot aquifer separation must close by October 31, 2020 "in accordance with the requirements of § 257.102," that is, the Closure Performance Standard. Id. § 257.101(b)(1).[23] It would be illogical if an impoundment were required to close because of its proximity to groundwater, but then the Closure Performance Standard allowed it to remain in contact with groundwater indefinitely.

Response to Comment #31

The South Ash Pond did fail to meet the aquifer separation requirement as stated in the comment. The facility has stopped using the South Ash Pond and is planning to close it via closure-in-place. However, the South Ash Pond has a geomembrane composite liner in addition to a clay liner that rise to the top of the pond's berms and meet 40 CFR 257 and IDEM closure standards. The South Ash Pond's liner system essentially cuts off any hydraulic connection to the underlying aquifer. Therefore, CCR in the South Ash Pond is not in contact with ground water, and through this partial closure plan approval, the facility is allowed to close the South Ash Pond in place.

NOTICE OF DECISION

The Indiana Department of Environmental Management (IDEM) made a decision on the closure and post-closure plans for the Duke Wabash River Generating Station South Ash Pond System (SW Program ID 84-UP-09) located at 450 Bolton Road, West Terre Haute. This decision approves the closure of some of the coal combustion residual (CCR) surface impoundments at the facility, and it allows CCR to be permanently disposed of at the Duke Energy Indiana, LLC, Wabash River Generating Station in Vigo County. The approved closure and post-closure plans are available for review at:

Vigo County Public Library, 1 Library Square, Terre Haute, IN 47807

The final decision is also available online via IDEM's Virtual File Cabinet (VFC). Please go to: http://vfc.idem.in.gov/. You can search there for approval documents using a variety of criteria.

APPEAL PROCEDURES

If you wish to challenge this decision, IC 13-15-6-1 and IC 4-21.5-3-7 require that you file a Petition for Administrative Review. If you seek to have the effectiveness of the permit stayed during the Administrative Review, you must also file a Petition for Stay. The Petition(s) must be submitted to the Office of Environmental Adjudication (OEA) at the following address within 15 days of the date of newspaper publication of this Notice:

Office of Environmental Adjudication
Indiana Government Center North, Room N103
100 North Senate Avenue
Indianapolis, IN 46204

The Petition(s) must include facts demonstrating that you are either the applicant, a person aggrieved or adversely affected by the decision, or otherwise entitled to review by law. Identifying the permit, decision, or other order for which you seek review by permit number, name of the applicant, location, or date of this notice will expedite review of the petition. Additionally, IC 13-15-6-2 and 315 IAC 1-3-2 require that your Petition include:

1. the name, address, and telephone number of the person making the request;
2. the interest of the person making the request;
3. identification of any persons represented by the person making the request;
4. the reasons, with particularity, for the request;
5. the issues, with particularity, for the request;
6. identification of the terms and conditions which, in the judgment of the person making the request, would be appropriate in the case in question to satisfy the requirements of the law governing documents of the type granted or denied by the Commissioner's action; and
7. a copy of the pertinent portions of the permit, decision, or other order for which you seek review, at a minimum, the portion of the Commissioner's action that identifies the person to whom the action is directed and the identification number of the action.

Pursuant to IC 4-21.5-3-1(f), any document serving as a petition for review or review and stay must be filed with the OEA. Filing of such a document is complete on the earliest of the following dates:

1. the date on which the petition is delivered to the OEA;
2. the date of the postmark on the envelope containing the petition, if the petition is mailed to the OEA by United States mail; or
3. the date on which the petition is deposited with a private carrier, as shown by a receipt issued by the carrier, if the petition is sent to the OEA by private carrier.

In order to assist permit staff in tracking any appeals of the decision, please provide a copy of your petition to Anna Mishel, IDEM, Solid Waste Permits, IGCN 1154, 100 North Senate Ave., Indianapolis, IN 46204-2251.

The OEA will provide you with notice of any pre-hearing conferences, preliminary hearings, hearings, stays, or orders regarding this decision if you submit a written request to the OEA. If you do not provide a written request to the OEA, you will no longer be notified of any proceedings pertaining to this decision.

More information on the review process is available at the website for the Office of Environmental Adjudication at http://www.in.gov/oea.

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
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Eric J. Holcomb, *Governor*
Bruno L. Pigott, *Commissioner*

What if you are not satisfied with this decision and you want to file an appeal?

Who may file an appeal?

The decision described in the accompanying Notice of Decision may be administratively appealed. Filing an appeal is formally known as filing a "Petition for Administrative Review" to request an "administrative hearing".

If you object to this decision issued by the Indiana Department of Environmental Management (IDEM) and are: 1) the person to whom the decision was directed, 2) a party specified by law as being eligible to appeal, or 3) aggrieved or adversely affected by the decision, you are entitled to file an appeal. (An aggrieved and adversely affected person is one who would be considered by the court to be negatively impacted by the decision. If you file an appeal because you feel that you are aggrieved, it will be up to you to demonstrate in your appeal how you are directly impacted in a negative way by the decision).

The Indiana Office of Environmental Adjudication (OEA) was established by state law – see Indiana Code (IC) 4-21.5-7 – and is a separate state agency independent of IDEM. The jurisdiction of the OEA is limited to the review of environmental pollution concerns or any alleged technical or legal deficiencies associated with the IDEM decision making process. Once your request has been received by OEA, your appeal may be considered by an Environmental Law Judge.

What is required of persons filing an appeal?

Filing an appeal is a legal proceeding, so it is suggested that you consult with an attorney. Your request for an appeal must include your name and address and identify your interest in the decision (or, if you are representing someone else, his or her name and address and their interest in the decision). In addition, please include a photocopy of the accompanying Notice of Decision or list the permit number and name of the applicant, or responsible party, in your letter.

Before a hearing is granted, you must identify the reason for the appeal request and the issues proposed for consideration at the hearing. You also must identify the permit terms and conditions that, in your judgment, would appropriately satisfy the requirements of law with respect to the IDEM decision being appealed. That is, you must suggest an alternative to the language in the permit (or other order, or decision) being appealed, and your suggested changes must be consistent with all applicable laws (See Indiana Code 13-15-6-2) and rules (See Title 315 of the Indiana Administrative Code, or 315 IAC).

The effective date of this agency action is stated on the accompanying Notice of Decision (or other IDEM decision notice). If you file a "Petition for Administrative Review" (appeal), you may wish to specifically request that the action be "stayed" (temporarily halted) because most appeals do not allow for an automatic "stay". If, after an evidentiary hearing, a "stay" is granted, the IDEM-approved action may be halted altogether, or only allowed to continue in part, until a final decision has been made regarding the appeal. However, if the action is not "stayed" the IDEM-approved activity will be allowed to continue during the appeal process.

Where can you file an appeal?
If you wish to file an appeal, you must do so in writing. There are no standard forms to fill out and submit, so you must state your case in a letter (called a petition for administrative review) to the Indiana Office of Environmental Adjudication (OEA). Do not send the original copy of your appeal request to IDEM. Instead, send or deliver your letter to:

The Indiana Office of Environmental Adjudication
100 North Senate Avenue, Room N103
Indianapolis, IN 46204

If you file an appeal, also please send a copy of your appeal letter to the IDEM contact person identified in the Notice of Decision, and to the applicant (person receiving an IDEM permit, or other approval).

Your appeal (petition for administrative review) must be received by the Office of Environmental Adjudication in a timely manner. The due date for filing an appeal may be given, or the method for calculating it explained, on the accompanying Notice of Decision (NOD). Generally appeals must be filed within 18 days of the mailing date of the NOD. To ensure that you meet this filing requirement, your appeal request must be:

1) Delivered in person to OEA, by the close-of-business on the eighteenth day (if the 18th day falls on a day when the Office of Environmental Adjudication (OEA) is closed for the weekend or for a state holiday, then your petition will be accepted on the next business day on which OEA is open), or
2) Given to a private carrier who will deliver it to the OEA on your behalf, (and from whom you must obtain a receipt dated on or before the 18th day), or
3) For those appeal requests sent by U.S. Mail, your letter must be postmarked by no later than midnight of the 18th day, or
4) Faxed to the OEA at (317) 233-9372 before the close-of-business on the 18th day, provided that the original signed "Petition for Administrative Review" is also sent, or delivered, to the OEA in a timely manner.

What are the costs associated with filing an appeal?
The OEA does not charge a fee for filing documents for an administrative review or for the use of its hearing facilities. However, OEA does charge a fifteen cent ($.15) per page fee for copies of any documents you may request. Another cost that could be associated with your appeal would be for attorney's fees. Although you have the option to act as your own attorney, the administrative review and associated hearing are complex legal proceedings; therefore, you should consider whether your interests would be better represented by an experienced attorney.

What can you expect from the Office of Environmental Adjudication (OEA) after you file for an appeal?
The OEA will provide you with notice of any prehearing conference, preliminary hearings, hearings, "stays," or orders disposing of the review of this decision. In addition, you may contact the OEA by phone at (317) 232-8591 with any scheduling questions. However, technical questions should be directed to the IDEM contact person listed on the Notice of Decision.

Do not expect to discuss details of your case with OEA other than in a formal setting such as a prehearing conference, a formal hearing, or a settlement conference. The OEA is not allowed to discuss a case without all sides being present. All parties to the proceeding are expected to appear at the initial prehearing conference.

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
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Eric J. Holcomb
Governor

Bruno L. Pigott
Commissioner

Date: August 16, 2019

TO: Legal Ads	TELEPHONE NUMBER: (812)231-4358
COMPANY: Tribune-Star Vigo County	FAX NUMBER: (812)231-4347
	E-MAIL: Mary.Koenig@Tribstar.Com

COMMENTS:

To Whom It May Concern:

Please insert for one time only the enclosed legal notice, in the Tribune-Star, no later than August 22, 2019.

If there is an additional charge to post this notice on your web site, please DO NOT post.

As we understand it, you will provide us with a notarized form (publishers claim) and clippings showing the date on which the advertisement appeared in your paper. This information should be mailed to Diane Poe at the following address:

dpoe@idem.IN.gov or

Diane Poe
Indiana Department of Environmental Management
Office of Land Quality
Permits Branch
IGCN Room 1101
100 North Senate Avenue
Indianapolis, Indiana 46204-2251

Please contact Diane Poe at (317) 232-4473 or dpoe@idem.IN.gov or Anna Mishel at (317) 233-6725 or Amishel@idem.IN.gov if you have any questions. Thank you for your cooperation.

NOTICE OF DECISION

The Indiana Department of Environmental Management (IDEM) made a decision on the closure and post-closure plans for the Duke Wabash River Generating Station South Ash Pond System (SW Program ID 84-UP-09) located at 450 Bolton Road, West Terre Haute. This decision approves the closure of some of the coal combustion residual (CCR) surface impoundments at the facility, and it allows CCR to be permanently disposed of at the Duke Energy Indiana, LLC, Wabash River Generating Station in Vigo County. The approved closure and post-closure plans are available for review at:

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The final decision is also available online via IDEM's Virtual File Cabinet (VFC). Please go to: http://vfc.idem.in.gov/. You can search there for approval documents using a variety of criteria.

APPEAL PROCEDURES

If you wish to challenge this decision, IC 13-15-6-1 and IC 4-21.5-3-7 require that you file a Petition for Administrative Review. If you seek to have the effectiveness of the permit stayed during the Administrative Review, you must also file a Petition for Stay. The Petition(s) must be submitted to the Office of Environmental Adjudication (OEA) at the following address within 15 days of the date of newspaper publication of this Notice:

Office of Environmental Adjudication
Indiana Government Center North, Room N103
100 North Senate Avenue
Indianapolis, IN 46204

The Petition(s) must include facts demonstrating that you are either the applicant, a person aggrieved or adversely affected by the decision, or otherwise entitled to review by law. Identifying the permit, decision, or other order for which you seek review by permit number, name of the applicant, location, or date of this notice will expedite review of the petition. Additionally, IC 13-15-6-2 and 315 IAC 1-3-2 require that your Petition include:

1. the name, address, and telephone number of the person making the request;
2. the interest of the person making the request;
3. identification of any persons represented by the person making the request;
4. the reasons, with particularity, for the request;
5. the issues, with particularity, for the request;
6. identification of the terms and conditions which, in the judgment of the person making the request, would be appropriate in the case in question to satisfy the requirements of the law governing documents of the type granted or denied by the Commissioner's action; and
7. a copy of the pertinent portions of the permit, decision, or other order for which you seek review, at a minimum, the portion of the Commissioner's action that identifies the person to whom the action is directed and the identification number of the action.

Pursuant to IC 4-21.5-3-1(f), any document serving as a petition for review or review and stay must be filed with the OEA. Filing of such a document is complete on the earliest of the following dates:

1. the date on which the petition is delivered to the OEA;
2. the date of the postmark on the envelope containing the petition, if the petition is mailed to the OEA by United States mail; or
3. the date on which the petition is deposited with a private carrier, as shown by a receipt issued by the carrier, if the petition is sent to the OEA by private carrier.

In order to assist permit staff in tracking any appeals of the decision, please provide a copy of your petition to Anna Mishel, IDEM, Solid Waste Permits, IGCN 1154, 100 North Senate Ave., Indianapolis, IN 46204-2251.

The OEA will provide you with notice of any pre-hearing conferences, preliminary hearings, hearings, stays, or orders regarding this decision if you submit a written request to the OEA. If you do not provide a written request to the OEA, you will no longer be notified of any proceedings pertaining to this decision.

More information on the review process is available at the website for the Office of Environmental Adjudication at http://www.in.gov/oea.

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
We Protect Hoosiers and Our Environment.
100 N. Senate Avenue • Indianapolis, IN 46204
(800) 451-6027 • (317) 232-8603 • www.idem.IN.gov
Eric J. Holcomb
Governor
Bruno L. Pigott
Commissioner

August 16, 2019

Vigo County Public Library
1 Library Square
Terre Haute, Indiana 47807-3609

Re: Documents for Public View

Dear Sir/Madam:

A copy of a permit decision for the Duke Wabash River Generating Station is enclosed. Also enclosed is a copy of the public notice announcing this permit decision and indicating the documents' availability at your library. This public notice will appear in a local newspaper soon. Please make these documents available to the public for the next 20 days since this permit can be appealed.

Please date and sign the enclosed verification of receipt form and mail it to our office in the envelope provided.

If you have any questions or comments about the permit notice, please contact me by dialing (317) 233-6725 or by e-mail at Amishel@idem.IN.gov.

Sincerely,

Anna Mishel
Solid Waste Permits Section
Office of Land Quality

Enclosures: Notice of Decision
Permit Letter
Verification of Receipt Form
Agency Addressed Envelope

cc with enclosures: Vigo County Health Department
Vigo County Commissioners
Vigo County Solid Waste Management District
Mayor, City of Terre Haute